

Appl. No. 10/657,132
Amendment dated: March 1, 2006
Reply to OA of: November 1, 2005

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1(currently amended). A thermal enhance semiconductor package, comprising:
a carrier having an upper surface and a lower surface opposed to the upper surface;

a semiconductor chip having an active surface, a back surface opposed to the active surface and a plurality of bonding pads formed on the active surface;

a plurality of conductive devices, which are formed on the bonding pads and connect the active surface of the semiconductor and the upper surface of the carrier;
and

a universal heat spreader having a plurality of through holes, the universal heat spreader disposed on the back surface of the semiconductor chip, wherein a plurality of heat transmission pins are disposed in one part of the through holes, air convection is provided via the other part of the through holes.

Claims 2-3(canceled).

4(currently amended). The thermal enhance semiconductor package of claim [[3]] 1, wherein the heat transmission pin has an outer surface and a copper layer is formed on the outer surface.

5(original). The thermal enhance semiconductor package of claim 4, wherein a material of the universal heat spreader comprises copper.

6(original). The thermal enhance semiconductor package of claim 4, wherein a material of the universal heat spreader comprises aluminum.

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7(original). The thermal enhance semiconductor package of claim 6, wherein one of the through holes has an inner wall and a copper layer is formed on the inner wall.

8(currently amended). The thermal enhance semiconductor package of claim [[3]] 1, wherein the heat transmission pin has an outer surface and a silver layer is formed on the outer surface.

9(original). The thermal enhance semiconductor package of claim 8, wherein a material of the universal heat spreader comprises copper.

10(original). The thermal enhance semiconductor package of claim 8, wherein a material of the universal heat spreader comprises aluminum.

11(original). The thermal enhance semiconductor package of claim 10, wherein one of the through holes has an inner wall and a copper layer is formed on the inner wall.

12(currently amended). The thermal enhance semiconductor package of claim [[3]] 1, further comprising a heat transmission adhesive formed between the back surface of the semiconductor chip and ~~the upper surface of the carrier~~ a surface of the universal heat spreader.

13(currently amended). The thermal enhance semiconductor package of claim [[3]] 1, further comprising a stiffener ring connecting the carrier and the universal heat spreader via a heat transmission adhesive.

14(original). The thermal enhance semiconductor package of claim 13, wherein the stiffener ring is disposed surrounding the semiconductor chip.

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15(currently amended). The thermal enhance semiconductor package of claim [[3]] 1, further comprising a filler disposed between the upper surface of the carrier and the active surface of the semiconductor chip.

16(original). The thermal enhance semiconductor package of claim 1, wherein one of the conductive devices is a conductive bump.

17(original). The thermal enhance semiconductor package of claim 1, wherein a plurality of solder balls are formed on the lower surface of the carrier.

Claims 18-23(canceled).